

Uranotaenia srilankensis, a New Species of the
Subgenus *Pseudoficalbia* from Sri Lanka
(Diptera: Culicidae)¹

E. L. Peyton
Medical Entomology Project
Smithsonian Institution
Washington, D. C. 20560

ABSTRACT. *Uranotaenia (Pseudoficalbia) srilankensis* n. sp. from Sri Lanka is described, illustrated and compared with *recondita* Edwards and *mattinglyi* Qutubuddin.

During the past four years (1970-1973), entomological collections have been made in Sri Lanka under the direction of Karl V. Krombein, Senior Entomologist, National Museum of Natural History, Washington, D. C. and P. H. D. H. de Silva, Director, National Museums of Sri Lanka as part of the project, "Biosystematic Studies of the Insects of Sri Lanka."²

Among the many mosquitoes collected by the Sri Lanka project were several adult specimens of a species resembling *recondita* Edwards. The specimens were reported in Harrison et al. (1974) as *Uranotaenia (Pseudoficalbia)* sp. I have now had the opportunity to examine the specimens more thoroughly and to reexamine specimens of *recondita*. The new species differs significantly from known Indian species and is described below.

The terminology of the adult follows Belkin (1962) with subsequent modification by SEAMP personnel (R. A. Bram, J. F. Reinert and Y.-M. Huang).

Uranotaenia (Pseudoficalbia) srilankensis n. sp.
(Fig. 1)

FEMALE. *Head*. Proboscis about 1.0 or slightly more of forefemur; apical expansion of labium moderate, a few inconspicuous setae at apex only; one pair of labial basal setae; palpus very short, about 0.1 of proboscis and equal to flagellomere 1; clypeus dark brown; pedicel dark reddish-brown, a few minute setae and inconspicuous scales dorsomesally; flagellum about 1.1 of proboscis or exceeding proboscis by about length of Flm 13, Flm 1 about 1.1 of Flm 2 and with a small inconspicuous basomesal patch of light brown scales, Flm 2-12 subequal in length, Flm 13 barely longer than Flm 1; whorls each with 6 setae; one stout black and one very weak opaque pair of interocular setae; 4-5

¹ This work was supported by Research Contract No. DA-MD-17-74-C-4086 from the U. S. Army Medical Research and Development Command, Office of the Surgeon General, Washington, D. C.

² Field investigations were sponsored by Smithsonian Research Grants, SFG-0-2859 and SFG-0-6955, Smithsonian Institution, Washington, D. C.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 1974		2. REPORT TYPE		3. DATES COVERED 00-00-1974 to 00-00-1974	
4. TITLE AND SUBTITLE Uranotaenia grilankensis, a New Species of the Subgenus Pseudoficalbia from Sri Lanka (Diptera: Culicidae)				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Medical Entomology Project, Smithsonian Institution, Washington, DC, 20560				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT see report					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 6	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

ocular setae; decumbent scales light brown on vertex, pale gray or creamy on ocular margin but forming no well-defined line, pale gray-white with bluish reflections at sides; erect scales long, slender, greatly expanded apically, dark brown, moderate in number, evenly distributed over occiput and vertex. *Thorax*. Scutal integument dark reddish-brown without obvious bare lines; prescutellar space bare on posterior half; scales narrow, curved, uniformly dark bronzy-brown; dorsocentral and supra-alar setae exceptionally long, stout, black; scutellum dark brown, scales on each lobe broad, dark brown, 3 long stout marginal setae on each lateral lobe and 4 similar setae on median lobe, 3-5 much smaller submarginal setae on each lobe; mesopostnotum and scutum concolorous, dark reddish-brown; paratergite pale brown, bare; pleural integument pale yellowish-brown except for dark brown *ppn*; *apn* with a few broad light brown scales; *ppn* with a few broad light grayish scales and 1 seta on upper posterior corner; *sp* with 1 seta; *ppl* with 1 strong and 3-5 weak setae; *stp* with a patch of pale grayish translucent scales on upper 0.5 (colorless and difficult to detect at some angles), and with 10-14 rather small setae along upper and posterior margins which become progressively weaker and inconspicuous ventrally; *umep* with 3(3-6) setae. *Wings*. Scales dark brown on anterior veins, lighter on posterior veins; cell R_2 about 0.43 of R_{2+3} and about 0.77 of cell M_2 . *Legs*. Coxae and trochanters pale yellowish-brown; forecoxa with scattered light brown translucent scales on anterior surface; midcoxa with a few inapparent grayish translucent scales anterolaterally; hindcoxa with similar scales on anterolateral and posterolateral aspects; femora dark brown dorsally, pale brown or gray ventrally; forefemur with a row of 4-6 short, well-spaced setae on anteroventral margin, 6-11 similar setae on posterodorsal margin, length of each being no greater than width of femur, occasionally a few scattered minute setae on dorsobasal 0.25, 1-3 much longer erect setae on dorsoapical 0.6; midfemur with 4-7 setae on anteroventral margin and 4-7 similar setae on posterior and posteroventral margin, a row of 3-6 long fine dorsal setae, numerous minute semierect setae covering dorsal surface of basal 0.33; tibiae and tarsi uniformly dark brown; hindtarsomere 1 about 0.96 of tibia (0.91-1.00). *Abdomen*. Terga with dark brown scales; laterotergite with light grayish-brown scales; sterna with integument light yellowish-brown and covered with shiny gray scales.

MALE. (Fig. 1). Adult essentially as female except for sexual differences. *Head*. Proboscis usually with 2 pairs of labial basal setae; flagellum strongly plumose, equal to or slightly less than length of proboscis, flagellomeres 1-11 subequal in length, flagellomeres 12-13 longer and subequal in length; whorls each with more than 20 setae. *Legs*. Posterior foreclaw noticeably smaller than anterior claw but the difference between them not as great as that of midclaws. *Terminalia*. Tergum IX long, broadly rounded apically, without median or lateral projections, finely spiculate near basal margin, basal emargination deep and narrow; tergum X complete dorsally, more or less straight and slightly recurved toward proctiger apically, only very slightly produced at middle, with widely separated laterally projected angular corners (lobes) which extend well beyond apical margin of tergum IX; basimere short and broad, entire surface covered with minute spicules, dorsal surface with scattered long slender setae of about equal development except for 2-3 noticeably longer ones near middle, stronger setae on lateral and ventral surfaces, scales restricted to a

few on lateral and ventral surfaces; basal mesal lobe distinctly sclerotized, with 1 very long stout apical seta and 3 stout subapical setae, a line of 2-4 lesser setae basal to these, 1 long strong and several short setae along apicoventral margin; distimere slender, slightly curved and tapered to apex, distal 0.35 with several small setae, spiniform small, acute; aedeagus with a short subapical dorsal bridge and a long narrow strongly sclerotized subapical ventral bridge, dorsal edge of each plate below bridge strongly flared laterally forming rounded shoulder-like subbasal corners; each plate with 2 short strong dorsal subapical teeth and an irregular double row of 6-7 small curved teeth on apical ventral margin, the most ventral strongest and directed basally; proctiger mostly membranous, with more or less distinct ventrolateral sclerotization, dorsolateral surface with minute spicules, some specimens with a single pair of cercal setae (undamaged condition?).

PUPA, LARVA and EGG. Unknown.

TYPE-DATA. Holotype ♂ (terminalia mounted on slide, bearing SEAMP Prep. No. 74/10), SRI LANKA, *North Central Province*, Anuradhapura Dist., Hunuwilagama, Wilpattu, Wildlife Society bungalow, elevation 200 ft., 10-19 March 1970, D. R. Davis and W. H. Rowe. Paratypes: 14 ♂ and 2 ♀, same data as holotype; 12 ♂ and 9 ♀, same province and district as holotype, Padaviya, Irrigation bungalow, elevation 180 ft., 27 Feb.- Mar. 1970, D. R. Davis and W. H. Rowe; 1 ♂ and 1 ♀, *Northern Province*, Vavuniya Dist., Parayanalankulam, Irrigation canal 25 mi. NW. Medawachchiya, elevation 100 ft., 20-25 Mar. 1970, D. R. Davis and W. H. Rowe; 3 ♂ and 2 ♀, *Sabaragamuwa Province*, Ratnapura Dist., Uggalkaltota, Irrigation bungalow, elevation 350 ft., 31 Jan.- 8 Feb. 1970, D. R. Davis and W. H. Rowe. All type material to be deposited in National Museum of Natural History (USNM), except for 3 ♂ and 1 ♀ paratypes to be deposited in the British Museum (Natural History) (BMNH) and 3 ♂ and 1 ♀ paratypes to be deposited in the National Museum of Sri Lanka, Colombo.

DISTRIBUTION. Material examined: 38 ♂, 19 ♀. SRI LANKA. Known only from localities for the type-series. Seven additional males and females were examined from these localities but were not included in the type-series because of their poor condition.

TAXONOMIC DISCUSSION. This small, somewhat obscure species belongs to a group containing numerous species which are morphologically similar to *recondita* Edwards. These species represent the *recondita* series, Section A of the subgenus *Pseudoficalbia* (Peyton 1972). Representatives of this series have a distribution throughout much of Asia and when known the larval habitats are small fresh water crab-holes, cave pools, deep rock-holes or crevices, tree-holes and rarely bamboo (see also Peyton 1970). This species is very similar to *recondita* and *mattinglyi* Qutubuddin in adult habitus, however it can be separated from these species on adult habitus or male genitalia characters. The latter 2 species are known only from India. Comparison with *mattinglyi* is partially based upon the original description since the holotype male of *mattinglyi* in the BMNH is in poor condition and lacks the genitalia. The genitalia slide was possibly returned to the describer for further study and was never returned to the BMNH. Its location cannot now be determined (personal communication, P. F. Mattingly). The single female paratype is in

good condition. Several specimens of *recondita*, including the type male, were examined. Diagnostic features of the adult habitus of *srilankensis* which separate it from *recondita* and *mattinglyi* are: length of proboscis to forefemur, length of female flagellum to proboscis, length of female palpus, color of ocular scales, *apn* with light brown scales; *ppn* integument dark which contrasts with remainder of pale pleuron; setal arrangement on fore- and midfemur; length of hindtarsomere 1 to tibia. *U. recondita* possesses the following: proboscis about 0.88 of forefemur; female flagellum exceeding proboscis by more than last 2 flagellomeres; female palpus about 0.12 of proboscis and 1.5 of flagellomere 1; decumbent scales of head grayish on vertex, whitish on ocular line but forming no well-defined line; pleural integument uniformly pale or at most indistinctly darker on extreme upper edge of *stp*; setae on fore- and midfemur more numerous; forefemur with several of the setae along posterodorsal margin longer than width of femur, a small dorsal patch of 4-6 long setae on basal 0.4 in addition to the anteroventral and posterodorsal rows; midfemur with setae concentrated on basal 0.5 except 1-2 setae which are widely separated from the others on the posterior surface, a large patch of 12-16 long setae on surface of anterior and anteroventral 0.3, minute semierect setae covering dorsal, posterior and ventral surfaces of basal 0.33 but with the greatest concentration on posteroventral surface. *U. mattinglyi* differs as follows: decumbent scales of head dark brown on vertex and distinctly whitish on ocular line; *apn* with whitish scales; *ppn* integument pale; *stp* and *mep* integument dark brown except on lower margins and strongly contrasts with the remainder of the pleuron; setae on fore- and midfemur more numerous, somewhat as in *recondita*; hindtarsomere 1 longer than tibia.

The male genitalia of *srilankensis* are very distinctive and apparently differ from all known members of the *recondita* series (only partially known in *mattinglyi*) by the following: tergum X with widely separated, laterally projected angular corners (apical margin varies with each angle in which a specimen is mounted but angular corners always apparent); dorsal edges of aedeagal plates below bridge flared laterally forming rounded shoulder-like subbasal corners. The illustrated distimere of *mattinglyi* Qutubuddin (1951) appears to be longer and more strongly curved apically than in *srilankensis*. Terga IX, X, proctiger and aedeagus of *recondita* are illustrated in Figure 1.

Because of the similarity of *srilankensis* to *recondita* and the absence of *Pseudoficalbia* species (other than *nivipleura* Leicester) in our collections from Sri Lanka, it appears that *srilankensis* is the species Carter (1950) listed from Sri Lanka as *recondita* Edwards.

BIOLOGY. The adults included in this paper were collected in light traps or net sweepings. Since the majority of species within the *recondita* series are known to utilize small fresh water crab-holes or similar habitats, it is quite likely immatures of *srilankensis* will eventually be found in this type of habitat also.

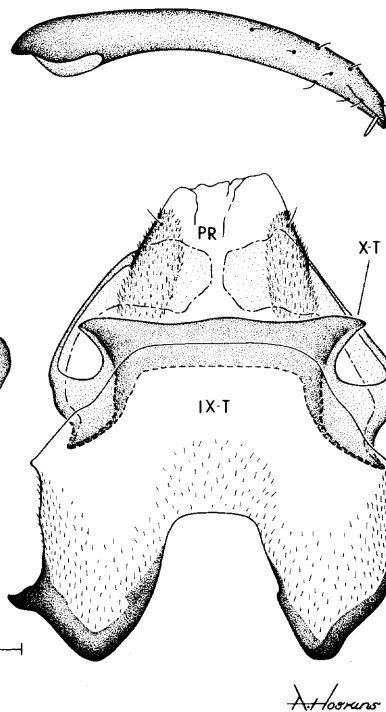
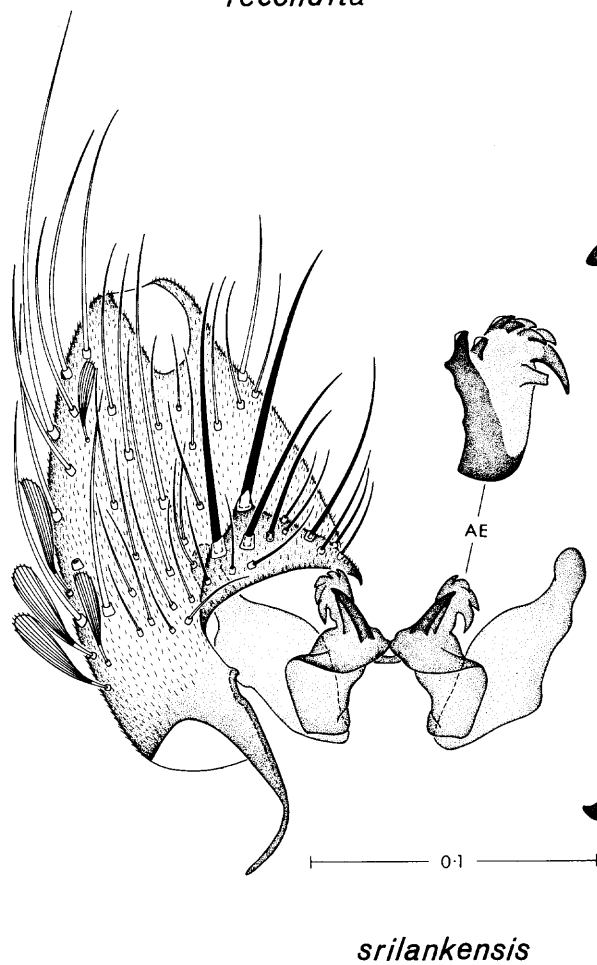
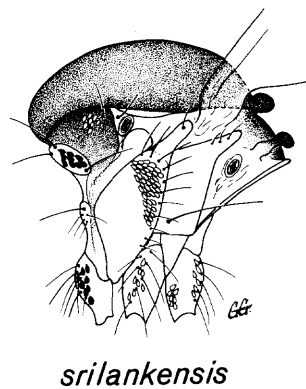
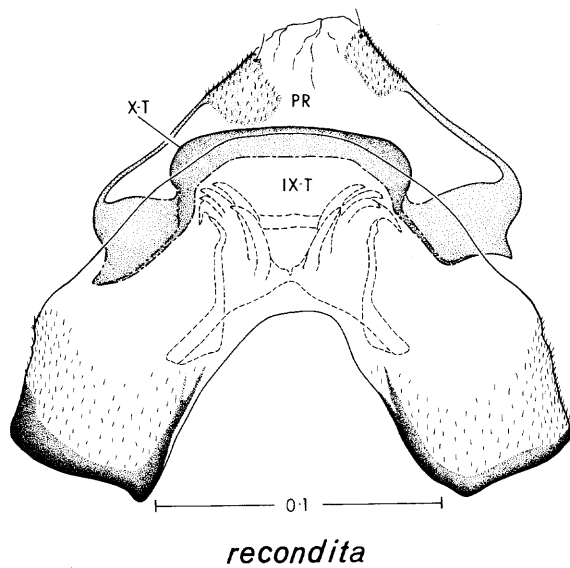
ACKNOWLEDGEMENTS

Appreciation is expressed to John F. Reinert and Ronald A. Ward, Department of Entomology, Walter Reed Army Institute of Research for reading and commenting on the manuscript. Special thanks are also expressed to Karl V. Krombein, Donald R. Davis and William H. Rowe of the Department of Entomology, National Museum of Natural History, Washington, D. C. for the provision of material for this study. I am grateful to Ann Hoskins Dery and Gloria Gordon of the Medical Entomology Project for preparing the illustrations.

REFERENCES CITED

- Belkin, J. N. 1962. The mosquitoes of the South Pacific (Diptera: Culicidae). Univ. Calif. Press, Berkeley and Los Angeles. 2 vols., 608 and 412 pp.
- Carter, H. F. 1950. Ceylon mosquitoes: List of species and names of mosquitoes recorded from Ceylon. Ceylon J. Sci. Sect. B, Zool. 24: 85-115.
- Harrison, B. A., J. F. Reinert, S. Sirivanakarn, Y.-M. Huang, E. L. Peyton and B. de Meillon. 1974. Distributional and biological notes on mosquitoes from Sri Lanka (Ceylon) (Diptera: Culicidae). Mosq. Syst. 6: 142-62.
- Peyton, E. L. 1970. Studies on *Uranotaenia* at SEAMP, A plea for further material. Mosq. Syst. News Lett. 2: 2-5.
- Peyton, E. L. 1972. A subgeneric classification of the genus *Uranotaenia* Lynch Arribálzaga, with a historical review and notes on other categories. Mosq. Syst. 4: 16-40.
- Qutubuddin, M. 1951. *Uranotaenia mattinglyi* sp. n., a new species of mosquito (Diptera, Culicidae) from Hyderabad (Deccan), India. Proc. R. Entomol. Soc. Lond. Ser. B, Taxon. 20: 107-9.

Fig.1



At. fuscus